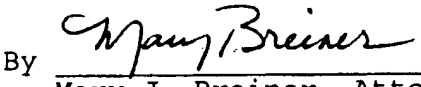
The claims are being amended as to form only to better conform the claims to U.S. claim practice. An abstract has been added as essentially set forth in the published International application.

Favorable consideration of the claims is requested.

Respectfully submitted,

GARY LOCK ET AL

By 

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Attachments - Abstract
- Marked-Up Version of Claims

MARKED-UP VERSION OF CLAIMS

1. (Amended) A dielectrophoretic (DEP) cell in which particles can be [characterised] characterized, manipulated and separated comprising an array of elongated electrodes, and means to apply at least one electrical signal to the electrodes, in which each electrode has a notional central axis along its direction of elongation, [the] each electrode [having] has one or more deflections from the notional central axis, and the electrodes in the array being in register.

3. (Amended) A DEP cell according to Claim 2 in which the [serpentine] electrodes are sinusoidal in shape.

4. (Amended) A DEP cell according to Claim 2 in which the [serpentine] electrodes are half sinusoidal in shape.

5. (Amended) A DEP cell according to Claim 2 in which the [serpentine] electrodes are of elongated "C" shape.

6. (Amended) A DEP cell according to Claim 2 in which the [serpentine] electrodes are single half sinusoids connected between straight side arms.

9. (Amended) A DEP cell according to any one of Claims 2, 3, 7 or 8 in which [the] curvature of the deflections from the notional central axis on [one] a first

side is different from [the] a curvature of the deflections on [the other] a second side, whereby particle transport channels of different width are provided.

10. (Amended) A DEP cell according to [any preceding] Claim 1, 2, 7 or 8 in which [the] positions of maximum curvature of each electrode are arranged in linear alignment.

11. (Amended) A DEP cell according to [any one of Claims 1 to 8] Claim 1, 2, 7 or 8 in which [the] positions of maximum curvature of each electrode are arranged in non-linear alignment.

13. (Amended) A DEP cell according to Claim 12 in which the electrodes are serpentine and each electrode comprises two sinusoids, and [the] positions of maximum curvature of the sinusoids are arranged along divergent curves.

14. (Amended) A DEP cell according to any one of Claims 1 to 4 comprising a first central array of sinusoidal or half sinusoidal electrodes, the axes of the electrodes of the first central array being straight and parallel, and a second outer array of sinusoidal or half sinusoidal electrodes, the axes of the electrodes of the second outer array being in the form of nested "U" shapes, there being provided means to apply electrical signals of different phases independently to the first and second arrays.

15. (Amended) A DEP cell according to [any one of Claims 1 to 12] Claim 1 in which [the] inter-electrode spacing in the array varies along the array.

16. (Amended) A DEP cell according to [any one of Claims 1 to 12] Claim 1 in which the electrodes are arranged in pairs with [the] inter-electrode spacing being substantially greater than [the] inter-pair spacing.

17. (Amended) A dielectrophoretic system comprising a DEP cell according to any one of Claims 1, 2, 7 or 8 [to 15], at least a part of the cell being formed of transparent material; means to illuminate the cell; and means to receive illumination transmitted through or reflected from the cell.

18. (Amended) A dielectrophoretic method comprising placing a suspension of particles in a liquid in [the] a vicinity of an array of elongated electrodes in which each electrode has a notional central axis along its direction of elongation, [the] each electrode [having] has one or more deflections from the notional central axis, and applying at least one electrical signal to the array whereby the particles are included in or excluded from regions of the electrodes corresponding to [the] maximum or minimum electrode curvatures.

19. (Amended) A method according to Claim 18 [in which the] further comprising selecting a frequency [of] for the electrical signals [is selected] to cause a negative

dielectrophoretic response in a selected particle type in the suspension and [there is further provided] providing means to cause the liquid suspension to flow across the electrode array.

21. (Amended) A method according to Claim 18 [in which] further comprising applying electrical signals at different phases [are applied] to the electrodes, whereby a [travelling] traveling wave electric field is generated which induces a [travelling] traveling wave DEP force on said particles, [the] with a real part of said force levitating the particles, and [the] an imaginary part thereof causing the particles to move into certain regions of the [travelling] traveling field.

22. (Amended) A method according to Claim 21 further comprising [the] an initial step of applying to the electrode array an electrical signal whereby a static DEP field is generated so as to cause initial levitation of the particles.

23. (Amended) A method according to Claim 21 further comprising [the] an initial step of applying to the electrode array an electrical signal whereby a [travelling] traveling wave electric field is generated at a frequency such that the particles are initially levitated but experience no translational force.

24. (Amended) A method according to Claim 18 in which the suspension comprises a suspension of first and second types of particles, [the] with concentrations of the types of particles differing by a factor of at least 1000, and in which [the shape of] the array of electrodes [is] has a shape selected so that the types of particles are separated.

25. (Amended) A method according to Claim 24 in which the shape of the array of electrodes is selected to prevent particles from contacting a mechanical constraint on [the] liquid flow.

26. (Amended) A method according to Claim 18 in which [the] concentration of the suspension of particles is greater than one million cells per [millilitre] milliliter.